



Australian Universities Rocket Competition 2018/2019

Prototype Vehicle Design Presentation - Task Sheet

1 Introduction

The purpose of the Prototype Vehicle Design task is for your team to demonstrate their understanding and technical excellence regarding the design and construction of their rocket and associated payload. This task will be accomplished through a 10 minute structured presentation session consisting of six minutes oral presentation followed by four minutes of questions. The presentation must be predominantly an oral presentation, but may contain supplementary material such as a poster, informative flyers, multimedia etc.

The presentation should at minimum contain the information presented in the Required Information section. Teams are free to format the presentation as they wish, however a guideline has been provided which may provide a useful baseline to start with. Furthermore, it is recommended that at least 3 people from each team participate in the presentation. This ensures that during question time, your team will likely have someone present who is knowledgeable on each aspect of your project.

Teams will be marked during their presentation by at minimum, three individuals who will discuss and cross check marks given in order to ensure a fair marking policy. Teams will receive their final mark for this task before the end of the competition. Feedback and comments on team's performance will be provided on the criteria sheet. A short period for questions, queries and clarifications to the markers may be provided, however this is subject to availability. Please note that due to the incredibly busy and tight schedule for the competition, the first official marks released for this task will be the final marks received by teams.

Note: The AURC will not provide any provisions that teams may need for their supplementary presentation material such as a laptop, projector or poster stand etc.

2 Required Information

The following information should be included in the Prototype Vehicle Design Presentation for an engaging and informative presentation:

- Introduction
 - Who are you?/Which University are you from?
 - Which competition (10k/30k)
- Overview of project characteristics and features
 - Rocket performance characteristics
 - Payload description – what is it?
 - Avionics summary
 - Basic flight trajectory/plan
- Production/Design Overview (Justify where necessary)
 - Brief overview of manufacturing processes/techniques used for critical components, including your nose cone, airframe and fins.
 - Brief overview of your assembly processes/techniques.
 - Brief overview of critical materials and adhesives used.
 - Evidence of consideration for manufacturing facilities available/Use of COTS components
- Payload
 - Payload design features.
 - Justification - why your team chose this payload.
 - What you hope to gain from flying this payload.
- Safety Considerations
 - Clearly explain and justify that your rocket is safe for launch.
 - Throughout the presentation, highlight how key decisions have improved or impacted a safe rocket design.
 - Critical information which clearly presents your teams dedication to safety in rocketry such as redundancy in critical components etc.
- Concluding statement

2.1 Suggested Information

The following list consists of interesting things your team may want to include when giving the presentation:

- Highlight a key design feature, manufactured part etc. which your team is particularly proud of and give a deeper description of the what/how/why.
- A key lesson your team has learnt from tackling the project.
- Special features in your rocket to look out for, which aren't covered by the above required information.
- Engage and entertain the audience who are there to see what your team and project is all about!

3 Criteria Sheet

Your final grade for the progress report will be rounded to the nearest tenth of a mark.

Criteria	Poor (1)	Average (2.5)	Good (5)	Score
Introduction (5%)	Limited or no Introduction.	Introduces the team, and their project, but some introductory information is not made clear.	Clearly and concisely Introduces the team, their project, and the contents of the presentation	
Overview of Project Features (15%)	<p>Rocket performance characteristics are missing, or are clearly not guided by an in-depth understanding of the dynamics and general design guidelines of high-powered rocketry</p> <p>Payload is not mentioned at all. OR Payload as described is clearly not fit for this competition.</p> <p>Avionics description is lacking sufficient detail to show that it will be able to meet all AURC, AMRS and team specified requirements. The Avionics may also not be present in the presentation.</p> <p>Flight trajectory is missing, or may display a predicted trajectory that is clearly unsafe or not guided by an understanding of high powered rocketry.</p>	<p>Rocket performance characteristics are presented but some key descriptor of performance is missing. Evidence that almost all aspects of high powered rocketry are well understood.</p> <p>There is evidence of a payload fit for the competition, but the payload description is lacking sufficient information for the audience to develop a good understanding of what it does/it's purpose.</p> <p>The design and integration of the avionics is described reasonably well. However, further evidence may be required to prove it will satisfy all AURC, AMRS and team specified requirements.</p> <p>Flight trajectory presented is clear, but has evidently not been derived through a well developed and thorough understanding of high-powered rocketry.</p>	<p>Clearly and concisely presents all the rocket performance characteristics which are required to provide evidence of an in depth understanding of the dynamics and general design guidelines of high powered rocketry.</p> <p>Payload description is concise and offers satisfactory insight into the type of payload, what it'll do, and what its purpose is.</p> <p>Avionics design and integration is concisely described and presented. Sufficient evidence presented to show that the avionics package will be able to meet all AURC, AMRS and team specified requirements.</p> <p>Flight trajectory presented is clear and realistic. The predicted trajectory path aligns with the team's desired target altitude. Rocket descends at a safe speed.</p>	

<p>Production & Design Overview (40%)</p>	<p>Rocket Description is clearly missing a key component that should be present in High Powered rocketry.</p> <p>Manufacturing Processes may not be mentioned. Manufacturing processes presented may be shown to have been unsafely executed. No justification has been provided for any key decisions made when selecting and executing manufacturing methods.</p> <p>Unclear or missing description of assembly techniques. Techniques used may be unjustified. Evidence presented which indicates unsafe execution of assembly of the rocket.</p> <p>No or limited attempt at outlining the materials and adhesives used. Justification may be completely lacking, or misguided. Choices may be completely unsuitable for use in high powered rocketry.</p> <p>Overall rocket design is fundamentally flawed due to one of the choices of manufacturing, assembly or materials not being fit for purpose, and may be unsafe.</p> <p>Description of thought processes in regards to utilising what resources are available to the team is missing.</p>	<p>Rocket and all accompanying systems are described. Delivery is not perfectly clear, or some key aspect of the systems are questionable.</p> <p>Manufacturing processes overview is brief, but lists key processes. Justification is present, but may be lacking in strength/accuracy of justification. A key process may not be justified appropriately.</p> <p>Assembly techniques used are mentioned and evidence provided that they were executed safely. Justification of methodology may be lacking.</p> <p>Adequate overview of key materials and adhesives utilised. May not be brief or may require additional clarification and justification on the choices.</p> <p>Overall rocket design is well presented and has an adequate basis in the fundamentals, however some understanding may be lacking in non safety critical aspects of rocketry.</p> <p>Production and manufacturing choices made in regards to availability of facilities may be poorly described or not justified as required.</p>	<p>Description of the rocket and all accompanying systems is clear and concise. It delivers all information required to understand how the rocket functions, and all systems are included.</p> <p>Manufacturing processes used for critical components are all presented. There is evidence that all manufacturing processes used have been safely executed. Choice of manufacturing process is aptly justified where required.</p> <p>Clear and concise overview of the assembly techniques your team has utilised for the rocket. No evidence of unsafe practices within the assembly process. Choice of assembly methodology is aptly justified where required.</p> <p>Clear and concise outline of the materials and adhesives utilised for your vehicle. No unsafe or unsuitable choices have been made. Choice of materials and adhesives are aptly justified where required.</p> <p>Overall rocket design has solid basis on the fundamentals with a clear regard for safe operation.</p> <p>Appropriate mention of any key production/manufacturing choices made in regards to availability of facilities or utilising COTS components.</p>	
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<p>Payload (15%)</p>	<p>Payload design may be missing. Payload may be poorly integrated or may be unsuitable for use within the competition.</p> <p>There is little to no appropriate justification for the payload design.</p> <p>The purpose of the payload is not mentioned.</p>	<p>Payload design is described, but may not be concise. Evidence presented that the payload may not be well integrated into the design and may hinder the flight performance of the rocket.</p> <p>The payload is partially justified and explained, however insight or thoughtfulness when designing and justifying the payload may be lacking.</p> <p>The purpose of the payload is present, but may be lacking in description.</p>	<p>Payload design is clearly and concisely described. Payload design is appropriately integrated into the overall design of the rocket. The payload design does not hinder the flight performance of the rocket.</p> <p>The payload choice and design is well justified, with significant evidence of insight and thoughtfulness in the process.</p> <p>The purpose of the payload is well described and provides a creative/novel/scientific purpose for the rocket to achieve.</p>	
<p>Q & A (15%)</p>	<p>Team representatives are unapproachable during allotted question time.</p> <p>Completely unprofessional handling of questions.</p> <p>Responses may be convoluted or do not address the questions presented. Responses show that the team does not have an understanding of the physics and fundamentals of rocketry. They may indicate a lack of focus on safe operations.</p>	<p>Team representatives are mostly receptive to questions and are relatively approachable.</p> <p>One or two mistakes with respect to handling questions professionally and respectfully.</p> <p>Responses to questions are generally correct and don't disagree with anything previously said. Responses show that the team has an understanding of the physics and fundamentals of rocketry, with a focus on safe operations.</p>	<p>The team representatives are present, receptive, and encourage the audience to present questions during the allotted time.</p> <p>All questions are handled with professionalism and respect towards the audience members.</p> <p>Responses to questions are clear and insightful. Responses show that the team has a deep understanding of the physics and fundamentals of rocketry, with a focus on safe operations.</p>	
<p>Presentation (10%)</p>	<p>Speakers may be very poorly understood due to delivery of the presentation.</p>	<p>Speakers may difficult to understand at times during the presentation.</p>	<p>Speakers all speak clearly and at an understandable pace.</p>	

	<p>The format is poorly structured or may be unsuitable for the venue and/or audience.</p> <p>Supplementary material is irrelevant or completely unnecessary and detracts from the presentation.</p> <p>The length of the oral portion of the presentation is more than ± 30 seconds outside of the allotted time of 6 minutes.</p>	<p>The presentation follows a relatively robust and sensible format. The format may be unsuitable for the venue and/or audience.</p> <p>Supplementary material may be superficial or not serve a clear purpose within the presentation.</p> <p>The length of the oral portion of the presentation is within ± 30 seconds of the allotted time of 6 minutes.</p>	<p>The format of the presentation flows perfectly. The format is suitable for the venue and audience.</p> <p>Any supplementary material used is appropriate and beneficial to the presentation. The presentation is not hindered through the lack of supplementary material.</p> <p>The length of the oral portion of the presentation is within ± 10 seconds of the allotted time of 6 minutes.</p>	
				<p style="text-align: right;">Total</p>